

## PROJECT PROFILE:

# Robot-Applied CRFC Coating Restores a Metal Roof in the Nick of Time

*Sustainable. Seamless. Solutions.*



### PROJECT NAME

The Modern Tool and Die Company

### PROJECT LOCATION

Willard, OH

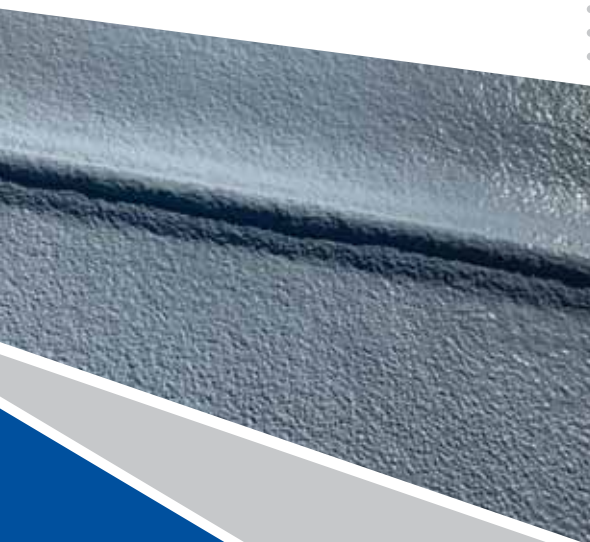
### CONTRACTOR

West Roofing Systems, Inc.  
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Standing seam metal roofs provide excellent aesthetic appeal—but what building owners do not always realize is that these systems can be incredibly costly to repair and replace. Both labor and materials required for these roof systems carry high price tags. However, this doesn't have to be the case—one cost-effective, labor-saving alternative to traditional metal roof repair or replacement is the use of high-performance spray foams and silicone coatings, such as those manufactured by Carlisle Roof Foam and Coatings (CRFC). Add the cutting-edge technology of a robot, and that standing seam metal roof restoration is suddenly feasible, within your budget and timeframe.

In 2014, the standing seam metal rooftop that protected The Modern Tool and Die Company (MTD) manufacturing plant in Willard, Ohio, was experiencing significant leakage. The roof system had been in place for 20 years and was in need of replacement. Hoping to find a solution that would not only protect their building from the elements but also drastically improve its energy efficiency, MTD chose to test a 16,000-square-foot portion of the rooftop with an application of spray polyurethane foam, to evaluate its performance over five years. In 2019, the test period was up, and it was determined that the foam had met performance expectations. It was time to restore the remaining 384,000-square-foot rooftop.

This project presented a variety of challenges, including a tight 52-day timeline; nonstop traffic through the distribution center, which required risk mitigation; and rapidly changing ambient temperatures during the installation period. With consideration of these challenges—along with the building owner's desire for increased energy efficiency, environmental sustainability, and reduced operating costs—West Roofing



SPRAY POLYURETHANE FOAM ALLIANCE

# SPFA

## NATIONAL INDUSTRY EXCELLENCE AWARDS 2020

CONTRACTOR  
**WEST ROOFING SYSTEMS, INC.**

PROJECT  
**MTD**  
CATEGORY  
**Roof Foam over 40,000 sq. ft.**

Interested in SPF's energy savings and monolithic layering, MTD received quotes to apply spray foam to the entire 384,000 sq. ft. roof. To apply 2.5" of foam and 30 mils of high solids silicone coating on a tight 52-day deadline was a challenge West Roofing was up for. Meticulously planned and staged, West used cloud based apps to allow everyone full access to real-time daily logs, QC reports, site specific safety checklists and more. Using 3 robotic foam applicators and a crew of 14 working overtime, the job completed on time. Working smarter West delivered with a 20-year manufacturer's warranty, for half the cost, greater R value and faster completion than competitive bids.

Systems decided to use CRFC's PremiSEAL 60R Roofing Spray Foam and SeamlesSEAL ULTRA HS Silicone Coating to complete this rooftop restoration.

CRFC's PremiSEAL 60R is a premium-grade roofing spray polyurethane foam that is sprayed in place to provide continuous insulation at an R-value of 6.3 per inch with no thermal breaks, which means that it provides optimal energy efficiency across the rooftop. In addition, PremiSeal 60R features a compressive strength of 60 psi, which enhances durability and makes it resistant to wind uplift, foot traffic, and leaks.

Application would begin with a layer of PremiSEAL 60R, followed by a layer of CRFC's SeamlesSEAL ULTRA HS Silicone Coating. This high-performance coating features extreme resistance to water infiltration, UV rays, and natural weathering, and would serve to protect and extend the service life of both the coating and the underlying standing seam metal roof. The combination of both of these CRFC products would ensure that this MTD facility would be watertight for a long time to come.

Once these products were chosen, the next challenge with this project was determining which application method to use. With the 52-day installation schedule, West Roofing Systems needed an application method that would be more efficient than traditional manual coating. In order to complete this application in time, the team from West Roofing decided to use three spray foam robots, working simultaneously to apply the two-and-a-half-inch layer of PremiSEAL 60R in one pass. The layer of foam would be followed with a 30-mil layer of SeamlesSEAL ULTRA HS. A total of 384,000 square feet of foam and coating would be applied by the end of this project. This intensive application required a 14-person installation crew applying the products at a daily average rate of 7,384 square feet to meet the tight deadline.

Throughout the installation, which began in August and concluded in October of 2019, the team at West Roofing Systems took great care to prioritize the health and safety of the crew. This included the development of a site-specific safety checklist that was used every day prior to daily start-up. A daily log and QC reports were also maintained, and a representative from CRFC walked the rooftop multiple times throughout the foam installation to ensure quality control and monitor performance of the PremiSEAL 60R.

The installation crew had to make a number of adjustments throughout the project, adjusting not only to a tightening project





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With a combination of excellent project management, craftsmanship, and high-performance products, this metal rooftop was restored in less than two months.

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deadline but also to rapid ambient temperature fluctuations, which decreased by 25 degrees from the start of the project to its completion. This change in temperature required that a faster reacting speed of foam be inserted halfway through the project to ensure optimal performance.

The project also required intensive coordination between the project management and installation teams and MTD. Because this facility is a distribution center, it experienced non-stop traffic, which had to be worked around on a daily basis to ensure safety both on the ground and on the rooftop. Another aspect of safety was the potential for overspray during foam installation. To mitigate this risk, West Roofing built custom foam-blocking skirts that were attached to the robots and encapsulated the spray area, ensuring that overspray would not reach the ground below. During periods of excessive wind, hand-held windscreens were also used to combat overspray and ensure that the foam remained on the rooftop.

Once the rooftop installation was complete, the project was finished with custom-fabricated metal edging placed around the perimeter along with new gutters, downspouts, and rake edges.

With a combination of excellent project management, craftsmanship, and high-performance products, this metal rooftop was restored in less than two months.



This restoration not only delivered on time, it also provided MTD with significant cost savings, not only in labor and installation but also in the long-term benefits of enhanced thermal and energy efficiency. With a rooftop that boasts a total R-value of 28, more than double its previous R-value, this facility will experience reduced operational costs throughout the lifecycle of the new roofing system.

In contrast to a traditional metal roof replacement, this restoration also reduced the environmental impact of the project, minimizing the amount of products used and eliminating the metal debris that would have been generated by the installation of a new metal roof. The CRFC foam and coating products also contributed to the environmental consciousness of this project, with the use of the HFO foam blowing agent and the solvent-free characteristics of the coating.

The entire roof system on MTD's Willard facility is now backed by CRFC's 20-year total system warranty. And because of the extreme durability of the system, along with West Roofing's high-quality workmanship, at the end of that 20 years, the rooftop should only need a power-wash and an additional layer of coating. This is a truly sustainable rooftop.



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CRFC-11986 - "West Roofing Project Profile"

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